PALM Intranet

Application Number SEARCH

IDS Flag Clearance for Application 10530826

IDS Information

Content	Mailroom Date	Entry Number	IDS Review	Reviewer
M844	04-08-2005	9	☑	02-15-2006 17:11:34 BShrivastav

UPDATE

Refine Search

Search Results -

Term	Documents
COMPUTER	1666837
COMPUTERS	361152
READABLE	304257
READABLES	7
MEDIUM	2246644
MEDIUMS	53238
MEDIA	699613
MEDIAS	2166
(11 AND ((COMPUTER ADJ READABLE) ADJ MEDIUM)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	39
(L11 AND ((COMPUTER ADJ READABLE ADJ MEDIUM))).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	39

Database:
US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L13

Refine Search

Recall Text Clear Interrupt

Search History

DATE: Friday, April 14, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
L13	L11 and ((computer adj readable adj medium))	39	L13

L12	L11 and (computer adj readable)	72	L12
L11	L9 and L6 and L5 and L4 and L3 and L2 and L1	1837	L11
L10	L9 and (navigator with restore)	2	L10
L9	(navigator adj sequence) and (preparation adj sequence) or (Imaging adj sequence)	2372	L9
L8	(nevigator adj sequence) and (preparation adj sequence) and (Imag$4 adj sequence)	0	L8
L7	(nevigator adj sequence) and (preparation adj sequence) and (Imaging adj sequence)	0	L7
L6	(nevigator adj sequence) and (preparation adj sequence) or (Imaging adj sequence)	2372	L6
L5	(nevigator adj sequence) or (preparation adj sequence) or (Imaging adj sequence)	3735	L5
L4	(nevigator with sequence) or (preparation adj sequence) or (Imaging adj sequence)	3735	L4
L3	(nevigator with sequence) or (preparation with sequence) or (Imaging adj sequence)	33031	L3
L2	(nevigator with sequence) or (preparation with sequence) or (Imaging with sequence)	40482	L2
L1	((Magnetic adj resonance) or MRI or NMR)	224298	L1

END OF SEARCH HISTORY

Refine Search

Search Results -

Term	Documents
COMPUTER	1666837
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(L11 AND ((COMPUTER ADJ READABLE ADJ MEDIUM))).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	39

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IBM Technical Disclosure Bulletins

Search: L13

Refine Search

Recall Text Clear Interrupt

Search History

DATE: Friday, April 14, 2006 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
L13	L11 and ((computer adj readable adj medium))	39	L13

L12	L11 and (computer adj readable)	72	L12
L11	L9 and L6 and L5 and L4 and L3 and L2 and L1	1837	L11
L10	L9 and (navigator with restore)	2	L10
L9	(navigator adj sequence) and (preparation adj sequence) or (Imaging adj sequence)	2372	L9
L8	(nevigator adj sequence) and (preparation adj sequence) and (Imag$4 adj sequence)	0	L8
L7	(nevigator adj sequence) and (preparation adj sequence) and (Imaging adj sequence)	0	L7
L6	(nevigator adj sequence) and (preparation adj sequence) or (Imaging adj sequence)	2372	L6
L5	(nevigator adj sequence) or (preparation adj sequence) or (Imaging adj sequence)	3735	L5
L4	(nevigator with sequence) or (preparation adj sequence) or (Imaging adj sequence)	3735	L4
L3	(nevigator with sequence) or (preparation with sequence) or (Imaging adj sequence)	33031	L3
L2	(nevigator with sequence) or (preparation with sequence) or (Imaging with sequence)	40482	L2
L1	((Magnetic adj resonance) or MRI or NMR)	224298	L1

END OF SEARCH HISTORY

Hit List

First Hit | Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 2 of 2 returned.

☐ 1. Document ID: US 6230039 B1 Relevance Rank: 32

Using default format because multiple data bases are involved.

L14: Entry 2 of 2 File: USPT May 8, 2001

US-PAT-NO: 6230039
DOCUMENT-IDENTIFIER: US 6230039 B1

TITLE: Magnetic resonance imaging method and system with adaptively selected flip angels

DATE-ISSUED: May 8, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stuber; Matthias	Brookline	MA		
Botnar; Rene	Chestnut Hill	MA		

US-CL-CURRENT: 600/410; 324/307, 324/309

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D.

☐ 2. Document ID: US 20040051527 A1 Relevance Rank: 19

L14: Entry 1 of 2 File: PGPB Mar 18, 2004

PGPUB-DOCUMENT-NUMBER: 20040051527
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040051527 A1

TITLE: Method and apparatus for spin-echo-train MR imaging using prescribed signal evolutions

PUBLICATION-DATE: March 18, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Mugler III, John P	Charlottesville	VA	US
Brookeman, James R.	Charlottesville	VA	US

APPL-NO: 10/451124 [PALM]
DATE FILED: June 19, 2003

PCT-DATA:

DATE-FILED	APPL-NO	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
Dec 21, 2001	PCT/US01/50551				

INT-CL-PUBLISHED: [07] G01 V 3/00

US-CL-PUBLISHED: 324/309; 324/307
US-CL-CURRENT: 324/309; 324/307

REPRESENTATIVE-FIGURES: 8

ABSTRACT:

A magnetic resonance imaging "MRI" method and apparatus for lengthening the usable echo-train duration and reducing the power deposition for imaging is provided. The method explicitly considers the t1 and t2 relaxation times for the tissues of interest, and permits the desired image contrast to be incorporated into the tissue signal evolutions corresponding to the long echo train. The method provides a means to shorten image acquisition times and/or increase spatial resolution for widely-used spin-echo train magnetic resonance techniques, and enables high-field imaging within the safety guidelines established by the Food and Drug Administration for power deposition in human MRI.

RELATED APPLICATIONS

[0001] This application claims priority from U.S. Provisional Application Serial No. 60/257,182, filed on Dec. 21, 2000, entitled "Spin-Echo-Train MR Imaging Using Prescribed Signal Evolutions", the entire disclosure of which is hereby incorporated by reference herein. The present application is related to U.S. Pat. No. 5,245,282, filed on Jun. 28, 1991, entitled "Three-dimensional Magnetic Resonance Imaging," the entire disclosure of which is hereby incorporated by reference herein.

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Term	Documents
2D	218549
2DS	368
NAVIGATOR	15089
NAVIGATORS	1226
(13 AND (NAVIGATOR WITH 2D)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2
(L13 AND (2D WITH NAVIGATOR)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2

Display Format: - Change Format

Previous Page Next Page Go to Doc#

Hit List

First Hit | Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 35 of 39 returned.

☐ 1. Document ID: US 20050007100 A1 Relevance Rank: 36

Using default format because multiple data bases are involved.

L13: Entry 12 of 39 File: PGPB Jan 13, 2005

PGPUB-DOCUMENT-NUMBER: 20050007100
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050007100 A1

TITLE: Diffusion tensor and q-space MRI specimen characterization

PUBLICATION-DATE: January 13, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Basser, Peter J.	Washington	DC	US
Assaf, Yaniv	Holon		IL

US-CL-CURRENT: 324/200; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 2. Document ID: US 6804384 B2 Relevance Rank: 33

L13: Entry 29 of 39 File: USPT Oct 12, 2004

US-PAT-NO: 6804384
DOCUMENT-IDENTIFIER: US 6804384 B2

TITLE: Color magnetic resonance imaging

DATE-ISSUED: October 12, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lowen; Steven B.	Burlington	MA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
McLean Hospital Corporation	Belmont	MA			02

APPL-NO: 09/879265 [PALM]
DATE FILED: June 12, 2001

INT-CL-ISSUED: [07] G06 K 9/00, A61 B 5/05

US-CL-ISSUED: 382/128; 378/4, 600/410
US-CL-CURRENT: 382/128; 378/4, 600/410

FIELD-OF-CLASSIFICATION-SEARCH: 382/100, 382/128, 382/129-134, 382/162, 382/165, 382/167, 324/303, 324/309, 378/4, 378/19, 378/62, 378/1, 600/306, 600/407, 600/409, 600/410, 600/425, 600/443
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4103541	August 1978	Arai et al.	73/88R
4455609	June 1984	Inamura et al.	250/370.07
4502007	February 1985	Mee et al.	324/307
4694252	September 1987	Riederer et al.	324/309
4729100	March 1988	Tsujii	
4789831	December 1988	Mayo, Jr.	324/309
4868843	September 1989	Nunan	378/152
4961425	October 1990	Kennedy et al.	
4991092	February 1991	Greensite	364/413.13
4998165	March 1991	Lindstrom	358/81
5003979	April 1991	Merickel et al.	
5025216	June 1991	Pauly et al.	324/309
5068610	November 1991	Mehlkopf et al.	324/312
5150053	September 1992	Pauly et al.	324/309
5152607	October 1992	Ibar	374/45
5255978	October 1993	Ibar	374/45
5281914	January 1994	Conturo et al.	324/309
5289124	February 1994	Jerosch-Herold et al.	324/303
5289520	February 1994	Pellegrino et al.	
5332968	July 1994	Brown	324/309
5343390	August 1994	Doi et al.	
5353794	October 1994	Miyazaki	128/653.2
5387864	February 1995	Gershenson et al.	324/248
5410250	April 1995	Brown	
5426684	June 1995	Gaborski et al.	
5465718	November 1995	Hochman et al.	
5486763	January 1996	Alfano	324/309
5488297	January 1996	Nakada	324/309
5578923	November 1996	Chen	324/309
5583346	December 1996	Nakajima	

5590215	December 1996	Allen	382/128
5720288	February 1998	Liu	600/453
5774599	June 1998	Muka et al.	
5847403	December 1998	Hughes et al.	250/505.1
5860921	January 1999	Ma et al.	600/410
5997472	December 1999	Bonnell et al.	600/109
6345114	February 2002	Mackie et al.	382/132
6396270	May 2002	Smith	324/309

OTHER PUBLICATIONS

Alfano et al., "Simultaneous Display of Multiple MR . . . ," Journal of Computer Assisted Tomography, 16(4):634-640, 1992.
Basser et al., "Estimation of the Effective Self-Diffusion . . . ," J. Magn. Reson. B., 103:247-254, 1994.
Basser et al., "MR Diffusion Tensor Spectroscopy and Imaging," Biophys J., 66:259-267, 1994.
Basser and Pierpaoli, "Microstructural and Physiological Features of Tissues . . . ," J. Magn. Reson B., 111:209-219, 1996.
Bush et al., "Anterior Cingulate Cortex Dysfunction in . . . ," Biol. Psychiatry, 45:1542-1552, 1999.
Bushnell et al., "Pain perception: Is there a . . . ," Proc. Natl. Acad. Sci. USA, 96:7705-7709, 1999.
Droege et al., "Nuclear Magnetic Resonance: A Gray . . . ," Radiology, 148:763-771, 1983.
Kamman et al., "Unified Multiple-Feature Color Display . . . ," Magnetic Resonance in Medicine, 9:240-253, 1989.
Kamman and Berendsen, "Multiple-Feature Color Display for . . . ," Science and Engineering of Medical Imaging, 1137:120-123, 1989.
Pierpaoli and Basser, "Toward a Quantitative Assessment of . . . ," Magnetic Resonance in Medicine, 36:893-906, 1996.
Pierpaoli, "One More Method for Color Mapping . . . ," 5.sup.th ISMRM, 3:1741, 1997.
Pierpaoli et al., "Diffusion Tensor Imaging of the Human Brain," Radiology, 201:637-648, 1996.

ART-UNIT: 2625

PRIMARY-EXAMINER: Patel; Jayanti K.

ATTY-AGENT-FIRM: Fish & Richardson P.C.

ABSTRACT:

The invention involves color magnetic resonance imaging using both a magnetic resonance property and a function of the magnetic resonance property. These enhanced color images provide greater informational content to the viewer. Applications include color imaging of estimates of T.sub.2 to distinguish between regions of a sample containing homogeneous tissue and regions containing mixtures of tissue by using spatial variation in the hue, brightness, or saturation of the colors.

43 Claims, 9 Drawing figures

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw D

☐ 3. Document ID: US 20030026467 A1 Relevance Rank: 33

L13: Entry 21 of 39 File: PGPB Feb 6, 2003

PGPUB-DOCUMENT-NUMBER: 20030026467
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030026467 A1

TITLE: Color magnetic resonance imaging

PUBLICATION-DATE: February 6, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Lowen, Steven B.	Burlington	MA	US

APPL-NO: 09/879265 [PALM]
DATE FILED: June 12, 2001

INT-CL-PUBLISHED: [07] G06 K 9/00

US-CL-PUBLISHED: 382/131
US-CL-CURRENT: 382/131

REPRESENTATIVE-FIGURES: 1

ABSTRACT:

The invention involves color magnetic resonance imaging using both a magnetic resonance property and a function of the magnetic resonance property. These enhanced color images provide greater informational content to the viewer. Applications include color imaging of estimates of T.sub.2 to distinguish between regions of a sample containing homogeneous tissue and regions containing mixtures of tissue by using spatial variation in the hue, brightness, or saturation of the colors.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 4. Document ID: US 5969524 A Relevance Rank: 33

L13: Entry 38 of 39 File: USPT Oct 19, 1999

US-PAT-NO: 5969524
DOCUMENT-IDENTIFIER: US 5969524 A

TITLE: Method to significantly reduce bias and variance of diffusion anisotrophy

measurements

DATE-ISSUED: October 19, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pierpaoli; Carlo M.	Rockville	MD		
Basser; Peter J.	Washington	DC		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The United States of America as represented by the Department of Health	Washington	DC			06

APPL-NO: 08/824706 [PALM]
DATE FILED: April 14, 1997

INT-CL-ISSUED: [06] G01 V 3/00

US-CL-ISSUED: 324/307; 324/309, 382/128
US-CL-CURRENT: 324/307; 324/309, 382/128

FIELD-OF-CLASSIFICATION-SEARCH: 382/280, 382/128, 382/132, 324/307, 324/309, 600/342, 600/475
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
Re33391	October 1990	Breton et al.	324/309
4716367	December 1987	Patz	324/309
4752734	June 1988	Wedeen	324/306
5187658	February 1993	Cline et al.	382/128
5452723	September 1995	Wu et al.	600/342
5488297	January 1996	Nakada	324/309
5492123	February 1996	Edelman	600/410
5539310	July 1996	Basser et al.	324/307
5560360	October 1996	Filler et al.	128/653.2
5630423	May 1997	Wang et al.	600/475
5786692	July 1998	Maier et al.	324/307

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
WO 95/04940	February 1995	WO	324/309

OTHER PUBLICATIONS

Sakuma, H. et al., "Adult and Neonatal Human Brian: Diffusional Anisotropy and Myelination with Diffusion-weighted MR Imaging", Radiology, vol. 180, pp. 229-233 (1991).
LeBihan, D. et al., "Is Water Diffusion Restricted in Human Brain White Matter", Neuroreport, vol. 4, pp. 887-890 (1993).
Nomura, Y., et al., "Diffusional Anisotropy of the Human Brain Assessed with Diffusion-Weighted MR: Relation with Normal Brain Development and Aging", AJNR Am J Neuroradiol, vol. 15, pp. 231-238 (1994).
Brunberg, J.A., et al. "In vivo MR Determination of Water Diffusion Coefficients and Diffusion Anisotropy: Correlation with Structural Alteration in Gliomas of the Cerebral Hemispheres", AJNR Am J Neuroradiol, vol. 16, pp. 361-371 (1995).
Basser, Peter J., "Inferring Microstructural Features and the Physiological State of Tissues from Diffusion-Weighted Images", NMR in Biomedicine, vol. 8, pp. 333-344 (1995).
Basser, Peter J. and Pierpaoli, Carlo, "Microstructural and Physiological Features of Tissue Elucidated by Quantitive-Diffusion-Tensor MRI", Journal of Magnetic Resonance Series B vol. 111, pp. 209-219 (Feb. 1996).
Pierpaoli, C. et al., "Identification of Fiber Degeneration and Organized Glicosis in Stroke Patients by Diffusion Tensor MRI", Proceedings of ISMRM, vol. 2, p. 563 (Apr. 1996).
Pierpaoli, C. et al., "New Invariant "Lattice" Index Achieves Significant Noise Reduction in Measuring Diffusion Anisotropy", Proceedings of the ISMRM, vol. 2, p. 1326 (Apr. 1996).
Pierpaoli, C. et al., "Toward a Quantitative Assessment of Diffusion Anisotropy", Magnetic Resonance in Medicine, vol. 36, pp. 893-906 (Dec. 1996).
Basser, Peter J., "Quantifying Errors in Fiber-Tract Direction and Diffusion Tensor Field Maps Resulting From MR Noise", International Society for Magnetic Resonance in Medicine, Fifth Scientific Meeting, Vancouver, B.C., Canda, Apr. 12-18, 1997.
Basser, Peter J., "Elucidating Tissue Structure by Diffusion Tensor MRI", Proceedings of the Society of Magnetic Resonance, Third Scientific Meeting and Exhibition and The European Society for Magnetic Resonance In Medicine and Biology, Twelfth Annual Meeting and Exhibition, held in Nice, France, Aug. 19-25, 1995, vol. 2, p. 900.
Pierpaoli, Carlo, et al., "Diffusion Tensor MR Imaging of the Human Brain", Radiology, 1996, vol. 201; pp. 637-648.
Ulug, Aziz M. et al., Mapping of Human Brain Fibers Using Diffusion Tensor Imaging, Proceedings of the International Society for Magnetic Resonance in Medicine, Fourth Scientic Meeting and Exhibition, New York, NY, Apr. 27-May 3, 1996, vol. 2, p. 1325.

ART-UNIT: 271

PRIMARY-EXAMINER: Boudreau; Leo H.

ASSISTANT-EXAMINER: Desire; Gregory

ATTY-AGENT-FIRM: Morgan & Finnegan, LLP

ABSTRACT:

A method for quantitatively assessing diffusion anisotropy according to an invariant anisotropy index that accounts for orientational coherence of the measured principal directions between different localized regions of an object to counteract the bias and increased variance effects of noise inherent in the diffusion measurement. A diffusion weighted imaging sequence is performed on a two-dimensional slice of an object to provide raw diffusion weighted image signals,

which are processed by conventional Fourier transform and magnitude reconstruction to provide diffusion weighted images, from which a diffusion tensor is estimated for each voxel of the imaged slice. In each voxel a lattice anisotropy index is calculated as a function of both the eigenvalues and eigenvectors of neighboring voxels such that intervoxel orientational coherence compensates noise-induced bias effects. The orientational coherence measure between two voxels is calculated according to an intervoxel deviatoric tensor dot product. The intervoxel lattice index for a given voxel is locally averaged over a group of adjacent voxel to provide a resulting lattice index for the given voxel. Lattice index images for visual observation of diffusion anisotropy are generated according to the lattice index in each voxel. Monte Carlo simulations are used to assess the noise immunity of lattice index functions formulated according to the present invention.

26 Claims, 9 Drawing figures

☐ 5. Document ID: US 20050111760 A1 Relevance Rank: 32

L13: Entry 11 of 39 File: PGPB May 26, 2005

PGPUB-DOCUMENT-NUMBER: 20050111760
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050111760 A1

TITLE: Resolution adaptive image filtering system and method

PUBLICATION-DATE: May 26, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Lal, Rakesh Mohan	Waukesha	WI	US
Mack, David C.	Waukesha	WI	US
Avinash, Gopal B.	New Berlin	WI	US

APPL-NO: 10/723791 [PALM]
DATE FILED: November 26, 2003

INT-CL-PUBLISHED: [07] G06 K 9/32

US-CL-PUBLISHED: 382/298
US-CL-CURRENT: 382/298

REPRESENTATIVE-FIGURES: 3

ABSTRACT:

A technique is provided for improving digital images by analysis of the sampling rate of the image data. The optimal sampling rate is determined, such as based on the point-spread function of the imaging system, and is compared to the actual pixel sampling rate. Based upon the comparison, the image may be shrunk or sub-

sampled to provide the optimal sampling rate that allows for optimal image filtering while accounting for inherent variations in spatial resolution of the images.

☐ 6. Document ID: US 7027854 B2 Relevance Rank: 32

L13: Entry 22 of 39 File: USPT Apr 11, 2006

US-PAT-NO: 7027854
DOCUMENT-IDENTIFIER: US 7027854 B2

TITLE: Magnetic resonance imaging utilizing a microcoil

DATE-ISSUED: April 11, 2006

PRIOR-PUBLICATION:

DOC-ID	DATE
US 20020165449 A1	November 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fuderer; Miha	Eindhoven			NL
Van Vaals; Johannes Jacobus	Eindhoven			NL

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Koninklijke Philips Electronics N.V.	Eindhoven			NL	03

APPL-NO: 09/980176 [PALM]
DATE FILED: March 28, 2001

PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE
PCT/EP01/03560	March 28, 2001	WO01/73460	Oct 4, 2001	Nov 29, 2001

INT-CL-ISSUED:

TYPE IPC	DATE	IPC-OLD
IPCP A61B5/055	20060101	A61B005/055

INT-CL-CURRENT:

TYPE IPC	DATE
CIPP A61 B 5/055	20060101

US-CL-ISSUED: 600/419; 600/420, 600/423, 324/309
US-CL-CURRENT: 600/419; 324/309, 600/420, 600/423

FIELD-OF-CLASSIFICATION-SEARCH: 600/424, 600/423, 600/419, 600/420, 324/309, 324/306
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5162736	November 1992	Mansfield et al.	324/309
5307808	May 1994	Dumoulin et al.	128/653.2
5715822	February 1998	Watkins et al.	128/653.5
5938599	August 1999	Rasche et al.	600/410
6397094	May 2002	Ludeke et al.	600/411

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
0731362	September 1996	EP	

OTHER PUBLICATIONS

Leung et al., "Intravascular MR Tracking Catheter: Preliminary Experimental Evaluation," 1995, pp. 1265-1270. cited by other
Coutts et al., "Integrated Position Tracking And Imaging Of Interventional Tools And Internal Devices using Small Fiducial Receiver Coils," Apr. 12, 1997, p. 1924. cited by other

ART-UNIT: 3737

PRIMARY-EXAMINER: Shaw; Shawna J.

ABSTRACT:

An interventional magnetic resonance method and apparatus utilizing a microcoil which enable localization of an interventional instrument by detecting magnetic resonance signals from the surroundings of the microcoil under the influence of magnetic field gradients. The outstanding reliability and the high speed of the method are due to the application of spatially non-selective RF pulses in conjunction with a sequence of gradient pulses in non-colinear directions. The localization method can be used inter alia for angiography wherein the signal intensity is used to determine the amount of blood present in the blood vessel.

22 Claims, 6 Drawing figures

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 7. Document ID: US 6879160 B2 Relevance Rank: 32

L13: Entry 27 of 39 File: USPT Apr 12, 2005

US-PAT-NO: 6879160
DOCUMENT-IDENTIFIER: US 6879160 B2

TITLE: Magnetic resonance scanner with electromagnetic position and orientation tracking device

DATE-ISSUED: April 12, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jakab; Peter D.	Brookline	MA	02146	

APPL-NO: 10/390432 [PALM]
DATE FILED: March 17, 2003

PARENT-CASE:
PRIORITY The following application is a continuation of U.S. patent application Ser. No. 09/470,166 which was filed on Dec. 22,1999 now U.S. Pat. No. 6,534,982 entitled, "MAGNETIC RESONANCE SCANNER WITH ELECTROMAGNETIC POSITION AND ORIENTATION TRACKING DEVICE" which claims priority from U.S. provisional patent application Ser. No. 60/113,782, filed on Dec. 23, 1998, entitled "MAGNETIC RESONANCE SCANNER WITH ELECTROMAGNETIC POSITION AND ORIENTATION TRACKING DEVICE. Both applications are incorporated by reference herein in their entirety.

INT-CL-ISSUED: [07] G01 V 3/00, A61 B 5/055

US-CL-ISSUED: 324/318; 324/309, 600/421, 600/424, 600/425, 600/411
US-CL-CURRENT: 324/318; 324/309, 600/411, 600/421, 600/424, 600/425

FIELD-OF-CLASSIFICATION-SEARCH: 324/318, 324/309, 324/322, 324/307, 324/300, 600/411, 600/424, 600/410, 600/426, 600/440, 600/421, 600/425, 382/131
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3868565	February 1975	Kuipers	324/34R
3983474	September 1976	Kuipers	324/43R
4017858	April 1977	Kuipers	343/100R
4054881	October 1977	Raab	343/112R
4254778	March 1981	Clow et al.	128/653
4287809	September 1981	Egli et al.	89/41
4298874	November 1981	Kuipers	343/112R
4314251	February 1982	Raab	343/112R
4328548	May 1982	Crow et al.	364/449
4346384	August 1982	Raab	343/112R

4396885	August 1983	Constant	324/208
4543959	October 1985	Sepponen	600/440
4613866	September 1986	Blood	343/448
4622644	November 1986	Hansen	364/559
4642786	February 1987	Hansen	364/559
4689591	August 1987	McDougall	335/299
4700136	October 1987	Yamaguchi	324/309
4710708	December 1987	Rorden et al.	324/207
4721914	January 1988	Fukushima et al.	324/320
4737794	April 1988	Jones	342/448
4742356	May 1988	Kuipers	342/448
4779620	October 1988	Zimmermann. et al.	128/653
4829250	May 1989	Rotier	324/225
4849692	July 1989	Blood	324/208
4875486	October 1989	Rapoport et al.	128/653
4945305	July 1990	Blood	324/207.17
4985678	January 1991	Gangarosa et al.	324/318
5042486	August 1991	Pfeiler et al.	128/653R
5049848	September 1991	Pulyer	335/296
5099845	March 1992	Besz et al.	128/653.1
5211165	May 1993	Dumoulin et al.	128/653.1
5251635	October 1993	Dumoulin et al.	128/653.1
5253647	October 1993	Takahashi et al.	128/653.1
5255680	October 1993	Darrow et al.	128/653.1
5265610	November 1993	Darrow et al.	128/653.1
5307808	May 1994	Dumoulin et al.	128/653.2
5353795	October 1994	Souza et al.	128/653.2
5390673	February 1995	Kikinis	600/410
5391199	February 1995	Ben-Haim	607/122
5443489	August 1995	Ben-Haim	607/115
5445150	August 1995	Dumoulin et al.	128/653.1
5526814	June 1996	Cline et al.	600/411
5558091	September 1996	Acker et al.	600/424
5572132	November 1996	Pulyer et al.	324/318
5577502	November 1996	Darrow et al.	128/653.1
5592939	January 1997	Martinelli	128/653.1
5600330	February 1997	Blood	342/463
5608849	March 1997	King, Jr.	395/119
5617857	April 1997	Chader et al.	128/653.1
5622170	April 1997	Schulz	128/653.1
5640170	June 1997	Anderson	343/895
5666055	September 1997	Jones et al.	324/318
5676673	October 1997	Ferre et al.	606/130
5690113	November 1997	Sliwa, Jr. et al.	128/660.07
5715822	February 1998	Watkins et al.	128/635.5
5729129	March 1998	Acker	324/207.12
5730129	March 1998	Darrow et al.	128/653.1

5738096	April 1998	Ben-Haim	128/653.1
5744960	April 1998	Pulyer	324/320
5752513	May 1998	Acker et al.	128/653.1
5761331	June 1998	Clark, III	382/131
5828770	October 1998	Leis et al.	382/103
5883608	March 1999	Hashimoto	345/96
5899857	May 1999	Wilk	600/407
5913820	June 1999	Bladen et al.	600/407
5914600	June 1999	Pulyer	324/319
5977771	November 1999	Petropoulos	324/318
6002255	December 1999	Pulyer	324/320
6016439	January 2000	Acker	600/411
6091241	July 2000	Querleux et al.	324/300
6119033	September 2000	Spigelman et al.	600/426
6129668	October 2000	Haynor et al.	600/424
6263230	July 2001	Haynor et al.	600/424
6317619	November 2001	Boernert et al.	600/410
6489767	December 2002	Prado et al.	324/318
6512373	January 2003	Griffin et al.	324/318
6534982	March 2003	Jakab	324/318
6657433	December 2003	Locatelli et al.	324/318

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
0 512 345	April 1992	EP	
0 965 304	December 1997	EP	
0 932 055	January 1999	EP	
0 932 055	February 1999	EP	
0 964 261	May 1999	EP	
0 964 261	May 1999	EP	
WO 91/07726	May 1991	WO	
WO 96/05768	February 1996	WO	
WO 97/29679	August 1997	WO	
WO 97/29683	August 1997	WO	
WO 97/29685	August 1997	WO	
WO 97/29709	August 1997	WO	
WO 97/29710	August 1997	WO	
WO 97/32179	September 1997	WO	
WO 97/36143	October 1997	WO	
WO 98/35720	August 1998	WO	
WO 98/36236	August 1998	WO	
WO 99/15914	April 1999	WO	
WO 99/43253	September 1999	WO	
WO 99/49783	October 1999	WO	
WO 99/54747	October 1999	WO	

WO 00/13586 March 2000 WO

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B. Blumich et al.; The NMR-Mouse: Costruction, Excitation, and Applications; Magnetic Resonance Imaging, vol. 16 (1998); 479-484.*
Markus Rokitta et al.; Portable Nuclear Magnetic Resonance Imaging System; Review of Scientific Instruments; vol. 71, No. 11; Nov. 2000, 4257-4262.*
Zimmer, G, et al.: "Characterization of Cross-Link Density in Technical Elastomers by the NMR-Mouse", Solid State Nucl. Magn. Respectively., vol. 12, No. 2-3, 1998, pp. 183-190.*
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Aoki, et al., "Active MR Tracking Using an External Tracking Coil at 0.2 T for Scan Plane Registration During Kinematic Imaging of Moving Joint," Proceedings of the International Society for Magnetic Resonance in Medicine, vol. 1, p. 688, 1998.
Website: New Partnership with BrainLAB, Siemens AG, 2003, pp. 1-3; http://www.medical.siemens.com/webapp/wcs/stores/servlet/ PSGenericDisplay?storeID=1 . . . .
Website_py_neurosurgery: Brainsuite.RTM.--Total Neurosurgical Control; pp. 1-3; http://www.brainlab.com/scripts/websites_py_neurosurgery.asp.

ART-UNIT: 2859

PRIMARY-EXAMINER: Gutierrez; Diego

ASSISTANT-EXAMINER: Fetzner; Tiffany A.

ATTY-AGENT-FIRM: Bromberg & Sunstein LLP

ABSTRACT:

A system for combining electromagnetic position and orientation tracking with magnetic resonance scanner is provided. One embodiment includes a magnetic resonance scanner defining a reference coordinate system for scanning a target. Coupled to the magnetic resonance scanner is a magnetic field source which produces a magnetic field. The magnetic field is sensed by a magnetic field sensor which produces a signal proportional to the magnetic field. The magnetic field sensor has a location relative to the reference coordinate system. The location of the magnetic field sensor relative to the reference coordinate system of the magnetic resonance scanner is determined by a location tracking device using at least a line segment model of the magnetic field source and the signal from the magnetic field sensor.

16 Claims, 33 Drawing figures

☐ 8. Document ID: US 20050240253 A1 Relevance Rank: 32

L13: Entry 8 of 39 File: PGPB Oct 27, 2005

PGPUB-DOCUMENT-NUMBER: 20050240253
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050240253 A1

TITLE: Systems and methods for altering vestibular biology

PUBLICATION-DATE: October 27, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Tyler, Mitchell Eugene	Madison	WI	US
Danilov, Yuri Petrovich	Middleton	WI	US
Bach-y-Rita, Paul	Madison	WI	US

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
Wicab, Inc.	Middleton	WI	US	02

APPL-NO: 11/033246 [PALM]
DATE FILED: January 11, 2005

RELATED-US-APPL-DATA:
child 11033246 A1 20050111
parent continuation-of 10998222 20041126 US PENDING
non-provisional-of-provisional 60525359 20031126 US
non-provisional-of-provisional 60605988 20040831 US
non-provisional-of-provisional 60615305 20041001 US

INT-CL-PUBLISHED: [07] A61 N 1/08, A61 N 1/32, A61 N 1/04, A61 N 1/06, A61 B 5/117, A61 B 5/103, A61 N 1/20

US-CL-PUBLISHED: 607/134; 600/595, 607/062
US-CL-CURRENT: 607/134; 600/595, 607/62

REPRESENTATIVE-FIGURES: 9

ABSTRACT:

The present invention relates to systems and methods for management of brain and body functions and sensory perception. For example, the present invention provides systems and methods of sensory substitution and sensory enhancement (augmentation) as well as motor control enhancement. The present invention also provides systems and methods of treating diseases and conditions, as well as providing enhanced physical and mental health and performance through sensory substitution, sensory enhancement, and related effects. In particular, the present invention provides systems and methods for altering vestibular biology to, among other things, treat diseases and conditions or enhance performance related to vestibular functions.

[0001] The present invention claims priority to U.S. Provisional Patent Application No. 60/525,359 filed Nov. 26, 2003, 60/605,988, filed Aug. 31, 2004, and Express

Mail Number EV 472 999 171 US, filed Oct. 1, 2004, the disclosures of which are herein incorporated by reference in their entireties.

☐ 9. Document ID: US 20030184297 A1 Relevance Rank: 31

L13: Entry 20 of 39 File: PGPB Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030184297
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030184297 A1

TITLE: Magnetic resonance scanner with electromagnetic position and orientation tracking device

PUBLICATION-DATE: October 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Jakab, Peter D.	Brookline	MA	US

APPL-NO: 10/390432 [PALM]
DATE FILED: March 17, 2003

RELATED-US-APPL-DATA:
child 10390432 A1 20030317
parent continuation-of 09470166 19991222 US GRANTED
parent-patent 6534982 US
non-provisional-of-provisional 60113782 19981223 US

INT-CL-PUBLISHED: [07] G01 V 3/00

US-CL-PUBLISHED: 324/318; 324/309, 324/307
US-CL-CURRENT: 324/318; 324/307, 324/309

REPRESENTATIVE-FIGURES: 1A

ABSTRACT:

A system for combining electromagnetic position and orientation tracking with magnetic resonance scanner is provided. One embodiment includes a magnetic resonance scanner defining a reference coordinate system for scanning a target. Coupled to the magnetic resonance scanner is a magnetic field source which produces a magnetic field. The magnetic field is sensed by a magnetic field sensor which produces a signal proportional to the magnetic field. The magnetic field sensor has a location relative to the reference coordinate system. The location of the magnetic field sensor relative to the reference coordinate system of the magnetic resonance scanner is determined by a location tracking device using at least a line segment model of the magnetic field source and the signal from the magnetic field sensor.

PRIORITY

[0001] The following application is a continuation of U.S. patent application Ser. No. 09/470,166 which was filed on Dec. 22,1999 entitled, "MAGNETIC RESONANCE SCANNER WITH ELECTROMAGNETIC POSITION AND ORIENTATION TRACKING DEVICE" which claims priority from U.S. provisional patent application serial No. 60/113,782, filed on Dec. 23, 1998, entitled "MAGNETIC RESONANCE SCANNER WITH ELECTROMAGNETIC POSITION AND ORIENTATION TRACKING DEVICE. Both applications are incorporated by reference herein in their entirety.

☐ 10. Document ID: US 6534982 B1 Relevance Rank: 31

L13: Entry 33 of 39 File: USPT Mar 18, 2003

US-PAT-NO: 6534982
DOCUMENT-IDENTIFIER: US 6534982 B1
**** See image for Certificate of Correction ****

TITLE: Magnetic resonance scanner with electromagnetic position and orientation tracking device

DATE-ISSUED: March 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jakab; Peter D.	Brookline	MA	02146	

APPL-NO: 09/470166 [PALM]
DATE FILED: December 22, 1999

PARENT-CASE:
PRIORITY The following application claims priority from provisional U.S. patent application entitled MAGNETIC RESONANCE SCANNER WITH ELECTROMAGNETIC POSITION AND ORIENTATION TRACKING DEVICE, Ser. No. 60/113,782, filed on Dec. 23, 1998 which is incorporated by reference herein in its entirety.

INT-CL-ISSUED: [07] G01 V 3/00

US-CL-ISSUED: 324/318; 324/309, 324/322, 600/424
US-CL-CURRENT: 324/318; 324/309, 324/322, 600/424

FIELD-OF-CLASSIFICATION-SEARCH: 324/300-322, 606/130, 600/424, 600/407, 600/423
See application file for complete search history.

PRIOR-ART-DISCLOSED:

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
3868565	February 1975	Kuipers	324/34R

3983474	September 1976	Kuipers	324/43R
4017858	April 1977	Kuipers	343/100R
4054881	October 1977	Raab	343/112R
4254778	March 1981	Clow et al.	128/653
4287809	September 1981	Werner et al.	89/41
4298874	November 1981	Kuipers	343/112R
4314251	February 1982	Raab	343/112R
4328548	May 1982	Crow et al.	364/449
4346384	August 1982	Raab	343/112R
4396885	August 1983	Constant	324/208
4613866	September 1986	Blood	343/448
4622644	November 1986	Hansen	364/559
4642786	February 1987	Hansen	364/559
4689591	August 1987	McDougall	335/299
4700136	October 1987	Yamaguchi	324/309
4710708	December 1987	Rorden et al.	324/207
4721914	January 1988	Fukushima et al.	324/320
4737794	April 1988	Jones	342/448
4742356	May 1988	Kuipers	342/448
4779620	October 1988	Zimmermann et al.	128/653
4829250	May 1989	Rotier	324/225
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4985678	January 1991	Gangarosa et al.	324/318
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5049848	September 1991	Pulyer	335/296
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5211165	May 1993	Dumoulin et al.	
5251635	October 1993	Dumoulin et al.	128/653.1
5253647	October 1993	Takahashi et al.	128/653.1
5255680	October 1993	Darrow et al.	128/653.1
5265610	November 1993	Darrow et al.	128/653.1
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5353795	October 1994	Souza et al.	128/653.2
5390673	February 1995	Kikinis	128/653.2
5391199	February 1995	Ben-Haim	607/122
5443489	August 1995	Ben-Haim	607/115
5445150	August 1995	Dumoulin et al.	128/653.1
5526814	June 1996	Cline et al.	600/411
5558091	September 1996	Acker et al.	128/653.1
5577502	November 1996	Darrow et al.	128/653.1
5592939	January 1997	Martinelli	128/653.1
5600330	February 1997	Blood	342/463
5608849	March 1997	King, Jr.	395/119
5617857	April 1997	Chader et al.	128/653.1
5622170	April 1997	Schulz	128/653.1

5640170	June 1997	Anderson	343/895
5676673	October 1997	Ferre et al.	606/130
5690113	November 1997	Sliwa, Jr. et al.	128/660.07
5715822	February 1998	Watkins et al.	128/635.5
5729129	March 1998	Acker	324/207.12
5730129	March 1998	Darrow et al.	
5738096	April 1998	Ben-Haim	128/653.1
5744960	April 1998	Pulyer	324/320
5752513	May 1998	Acker et al.	128/653.1
5761331	June 1998	Clark, III	382/131
5828770	October 1998	Leis et al.	382/103
5883608	March 1999	Hashimoto	345/96
5899857	May 1999	Wilk	600/407
5913820	June 1999	Bladen et al.	600/407
5914600	June 1999	Pulyer	324/319
5977771	November 1999	Petropoulos	324/318
6091241	July 2000	Querleux et al.	324/300
6129668	October 2000	Haynor et al.	600/424
6263230	July 2001	Haynor et al.	600/424

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	CLASS
0 512 345	April 1992	EP	
0 512 345	November 1992	EP	
0 965 304	December 1997	EP	
0 932 055	January 1999	EP	
0 932 055	February 1999	EP	
0 964 261	May 1999	EP	
0 964 261	May 1999	EP	
WO 91/07726	May 1991	WO	
WO 96/05768	February 1996	WO	
WO 97/29679	August 1997	WO	
WO 97/29683	August 1997	WO	
WO 97/29685	August 1997	WO	
WO 97/29709	August 1997	WO	
WO 97/29710	August 1997	WO	
WO 97/32179	September 1997	WO	
WO 97/36143	October 1997	WO	
WO 98/35720	August 1998	WO	
WO 98/36236	August 1998	WO	
WO 99/15914	April 1999	WO	
WO 99/43253	September 1999	WO	
WO 99/49783	October 1999	WO	
WO 99/54747	October 1999	WO	
WO 00/13586	March 2000	WO	

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Takeshi Okumura et al., "The Development of a Neurosurgical Navigation System" from Shimadzo Lloron 51 (1-2): 45-57, Sep. 1994. Official USPTO translation of the original Japanese document.*
X.Ma Et Al.: "Active MR Tracking Using an External Tracking coil at 0.2 T for Scan Plane Registration During Kinematic Imaging of Moving Joint" proceedings of the International Society for Magnetic Resonance in Medicine, Sixth Scientific Meeting and Exhibition, Sydney, Australia, Apr. 18-24, 1998, vol. 1, p. 688 XP002137018.
Aoki, et al., "Active MR Tracking Using an External Tracking Coil at 0.2 T for Scan Plane Registration During Kinematic Imaging of Moving Joint," Proceedings of the International Society for Magnetic Resonance in Medicine, vol. 1, p. 688, 1998.
Copy of return postcard from original Information Disclosure Statement Mailed on Aug. 30, 2000.

ART-UNIT: 2862

PRIMARY-EXAMINER: Lefkowitz; Edward

ASSISTANT-EXAMINER: Fetzner; Tiffany A.

ATTY-AGENT-FIRM: Bromberg & Sunstein LLP

ABSTRACT:

A system for combining electromagnetic position and orientation tracking with magnetic resonance scanner is provided. One embodiment includes a magnetic resonance scanner defining a reference coordinate system for scanning a target. Coupled to the magnetic resonance scanner is a magnetic field source which produces a magnetic field. The magnetic field is sensed by a magnetic field sensor which produces a signal proportional to the magnetic field. The magnetic field sensor has a location relative to the reference coordinate system. The location of the magnetic field sensor relative to the reference coordinate system of the magnetic resonance scanner is determined by a location tracking device using at least a line segment model of the magnetic field source and the signal from the magnetic field sensor.

48 Claims, 33 Drawing figures

☐ 11. Document ID: US 20050146327 A1 Relevance Rank: 31

L13: Entry 10 of 39 File: PGPB Jul 7, 2005

PGPUB-DOCUMENT-NUMBER: 20050146327
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050146327 A1

TITLE: Magnetic resonance scanner with electromagnetic position and orientation

tracking device

PUBLICATION-DATE: July 7, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Jakab, Peter D.	Brookline	MA	US

APPL-NO: 11/068621 [PALM]
DATE FILED: February 28, 2005

RELATED-US-APPL-DATA:
child 11068621 A1 20050228
parent continuation-of 10390432 20030317 US GRANTED
parent-patent 6879160 US
child 10390432 20030317 US
parent continuation-of 09470166 19991222 US GRANTED
parent-patent 6534982 US
non-provisional-of-provisional 60113782 19981223 US

INT-CL-PUBLISHED: [07] G01 V 3/00

US-CL-PUBLISHED: 324/302; 324/318
US-CL-CURRENT: 324/302; 324/318

REPRESENTATIVE-FIGURES: 2B

ABSTRACT:

A system for combining electromagnetic position and orientation tracking with magnetic resonance scanner is provided. One embodiment includes a magnetic resonance scanner defining a reference coordinate system for scanning a target. Coupled to the magnetic resonance scanner is a magnetic field source which produces a magnetic field. The magnetic field is sensed by a magnetic field sensor which produces a signal proportional to the magnetic field. The magnetic field sensor has a location relative to the reference coordinate system. The location of the magnetic field sensor relative to the reference coordinate system of the magnetic resonance scanner is determined by a location tracking device using at least a line segment model of the magnetic field source and the signal from the magnetic field sensor.

PRIORITY

[0001] The following patent application claims priority and is a continuation patent application of U.S. patent application Ser. No. 10/390,432 that was filed on Mar. 17, 2003 which itself is a continuation of U.S. patent application Ser. No. 09/470,166, that was filed on Dec. 22, 1999 and issued as U.S. Pat. No. 6,534,982 that claims priority from U.S. provisional patent application Ser. No. 60/113,782, filed on Dec. 23, 1998, entitled "MAGNETIC RESONANCE SCANNER WITH ELECTROMAGNETIC POSITION AND ORIENTATION TRACKING DEVICE. All of the applications are incorporated by reference herein in their entirety.

☐ 12. Document ID: US 20060018548 A1 Relevance Rank: 31

L13: Entry 2 of 39 File: PGPB Jan 26, 2006

PGPUB-DOCUMENT-NUMBER: 20060018548
PGPUB-FILING-TYPE:
DOCUMENT-IDENTIFIER: US 20060018548 A1

TITLE: Method, system, and computer software product for automated identification of temporal patterns with high initial enhancement in dynamic magnetic resonance breast imaging

PUBLICATION-DATE: January 26, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Chen; Weijie	Chicago	IL	US
Giger; Maryellen L.	Elmhurst	IL	US
Newstead; Gillian	Chicago	IL	US

APPL-NO: 11/056366 [PALM]
DATE FILED: February 14, 2005

RELATED-US-APPL-DATA:
us-provisional-application US 60544239 20040213

INT-CL-PUBLISHED:

TYPE	IPC	DATE	IPC-OLD
IPCP	G06K9/46	20060101	G06K009/46

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPP	G06 K 9/46	20060101

US-CL-PUBLISHED: 382/190
US-CL-CURRENT: 382/190

ABSTRACT:

A method, system, and computer software product for analyzing medical images, including obtaining image data representative of a plurality of medical images of the abnormality, each medical image corresponding to an image of the abnormality acquired at a different time relative to a time of administration of a contrast medium, each medical image including a predetermined number of voxels; partitioning each medical image into at least two groups based on the obtained image data, wherein each group corresponds to a subset of the predetermined number of voxels, and each group is associated with a temporal image pattern in the plurality of medical images; selecting, from among the temporal patterns, an enhancement temporal pattern as representative of the abnormality; and determining, based on the selected temporal pattern, a medical state of the abnormality.

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit under 35 U.S.C. .sctn. 119 of the filing date of Provisional Application No. 60/544,239, filed Feb. 13, 2004, the contents of which are incorporated herein by reference.

☐ 13. Document ID: US 6230039 B1 Relevance Rank: 30

L13: Entry 36 of 39 File: USPT May 8, 2001

US-PAT-NO: 6230039
DOCUMENT-IDENTIFIER: US 6230039 B1

TITLE: Magnetic resonance imaging method and system with adaptively selected flip angels

DATE-ISSUED: May 8, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stuber; Matthias	Brookline	MA		
Botnar; Rene	Chestnut Hill	MA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Philips Electronics North America Corporation	New York	NY			02

APPL-NO: 09/536943 [PALM]
DATE FILED: March 28, 2000

INT-CL-ISSUED: [07] A61 B 5/00

US-CL-ISSUED: 600/410; 324/309, 324/307
US-CL-CURRENT: 600/410; 324/307, 324/309

FIELD-OF-CLASSIFICATION-SEARCH: 600/410, 600/413, 600/419, 324/307, 324/309, 324/306
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
4937526	June 1990	Ehman et al.	324/309
5069213	December 1991	Polczynski	128/633
5307014	April 1994	Laub	324/306
5652513	July 1997	Liu et al.	324/306
5842989	November 1999	Zur	600/410

5977796 November 1999 Bornert et al. 324/306

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Pauly et al., "A k-Space Analysis of Small-Tip-Angle Excitation", Information Systems Laboratory, Stanford University, Dec. 7, 1987.
Sachs et al., "Real-Time Motion Detection in Spiral MRI using Navigators", MRM 32:639-645, 1994, The Information Systems Laboratory, Department of Electrical Engineering, Stanford University, Stanford, California, pp. 36-49.
Wang et al., "Algorithms for Extracting Motion Information from Navigator Echoes", MRM 36: 117-123, 1996, Diagnostic Radiology, pp. 117-123.
Wood et al., "Suppression of Respiratory Motion Artifacts in Magnetic Resonance Imaging", Medical Phys. 13 (6), Nov./Dec. 1986, pp. 794-805.
Liu et al., "A Monitoring, Feedback, and Triggering System for Reproducible Breath-Hold MR Imaging"MRM 30:507-511, 1993, Magnetic Resonance Laboratory, department of Diagnostic Radiology, Mayo Clinic and Foundation.

ART-UNIT: 377

PRIMARY-EXAMINER: Lateef; Marvin M.

ASSISTANT-EXAMINER: Mantis Mercader; Eleni Maria

ATTY-AGENT-FIRM: Vodopia; John F.

ABSTRACT:

This invention relates to methods and apparatus for magnetic resonance (MR) imaging of moving parts of a patient in which flip angles for the excitation of nuclear magnetization are adaptively selected during image data acquisition in order to minimize artifacts. In particular, the flip angles are selected so that a smooth distribution of signal-strengths in k-space results even though the order of phase-encoding gradients is also adaptively selected in dependence of the measured instantaneous state of motion of the moving part. The invention also includes MR apparatus for practicing the described methods and software for controlling an MR apparatus to practice the methods.

19 Claims, 7 Drawing figures

☐ 14. Document ID: US 5908386 A Relevance Rank: 30

L13: Entry 39 of 39 File: USPT Jun 1, 1999

US-PAT-NO: 5908386
DOCUMENT-IDENTIFIER: US 5908386 A

TITLE: Fast MRI for assessment of myocardial perfusion with arrythmia insensitive magnetization preparation

DATE-ISSUED: June 1, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ugurbil; Kamil	Minneapolis	MN		
Tsekos; Nikolaos V.	Minneapolis	MN		
Garwood; Michael G.	Medina	MN		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Regents of the Universotiy of Minnesota	Minneapolis	MN			02

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PARENT-CASE:
This application claims the benefit of U.S. Provisional Application No. 60/008,642 filed Dec. 14, 1995.

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FIELD-OF-CLASSIFICATION-SEARCH: 128/653.2, 128/653.3, 324/306, 324/309, 600/410, 600/419, 600/420
See application file for complete search history.

PRIOR-ART-DISCLOSED:

OTHER PUBLICATIONS

Haase, A., "Snapshot FLASH MRI. Applications to T1, T2, and Chemical-Shift Imaging", Magnetic Resonance in Medicine 13, 77-89, (1990).
Tsekos, N.V., et al., "Fast Anatomical Imaging of the Heart and Assessment of Myocardial Perfusion with Arrhythmia Insensitive Magnetization Preparation", Magnetic Resonance In Medicine, 34, 530-536, (1995).
Wilke, N., et al., "Concepts of Myocardial Perfusion Imaging in Magnetic Resonance Imaging", Magnetic Resonance in Medicine, 10, 249-286, (1994).

ART-UNIT: 377

PRIMARY-EXAMINER: Manuel; George

ASSISTANT-EXAMINER: Shaw; Shawna J.

ATTY-AGENT-FIRM: Schwegman, Lundberg Woessner & Kluth P.A.

ABSTRACT:

Contrast preparation based on Modified Driven Equilibrium Fourier Transfer generates T1 weighted images for assessment of the myocardial perfusion with contrast agent first-pass kinetics. The preparation scheme produces T1 contrast with insensitivity to arrhythmias in prospectively triggered sequential imaging thereby eliminating one of the major sources of problems in potential patient studies with previously employed contrast preparations schemes.